



**SLOVENSKI STANDARD
SIST EN 60077-3:2003**

01-maj-2003

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Railway applications - Electric equipment for rolling stock -- Part 3: Electrotechnical components - Rules for d.c. circuit-breakers

Bahnanwendungen - Elektrische Betriebsmittel auf Bahnfahrzeugen -- Teil 3: Elektrotechnische Bauteile - Regeln für DC-Leistungsschalter

Applications ferroviaires - Equipements électriques du matériel roulant -- Partie 3: Composants électrotechniques - Règles pour disjoncteurs à courant continu

Ta slovenski standard je istoveten z: EN 60077-3:2002

ICS:

29.280 Ò\^ dã } æ\^ } æ\] \^ { æ Electric traction equipment

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en

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EUROPEAN STANDARD

EN 60077-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2002

ICS 29.280

English version

**Railway applications -
Electric equipment for rolling stock
Part 3: Electrotechnical components -
Rules for d.c. circuit-breakers
(IEC 60077-3:2001)**

Applications ferroviaires -
Equipements électriques
du matériel roulant

Partie 3: Composants électrotechniques -
Règles pour disjoncteurs
à courant continu
(CEI 60077-3:2001)

Bahnanwendungen -
Elektrische Betriebsmittel
auf Bahnfahrzeugen

Teil 3: Elektrotechnische Bauteile - Regeln
für DC-Leistungsschalter
(IEC 60077-3:2001)

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This European Standard was approved by CENELEC on 2002-03-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

The text of document 9/651/FDIS, future edition 1 of IEC 60077-3, prepared by IEC TC 9, Electric railway equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60077-3 on 2002-03-01.

This European Standard should be read in conjunction with EN 60077-1 and EN 60077-2.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2003-03-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2005-03-01

Annexes designated "normative" are part of the body of the standard.

Annexes designated "informative" are given for information only.

In this standard, annexes A and ZA are normative and annex B is informative.

Annex ZA has been added by CENELEC.

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Endorsement notice (standards.iteh.ai)

The text of the International Standard IEC 60077-3:2001 was approved by CENELEC as a European Standard without any modification.

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60050-441	1984	International Electrotechnical Vocabulary (IEV) Chapter 441: Switchgear, controlgear and fuses	-	-
IEC 60077-1 (mod)	1999	Railway applications - Electric equipment for rolling stock Part 1: General service conditions and general rules	EN 60077-1	2002
IEC 60077-2 (mod)	1999	Part 2: Electrotechnical components - General rules	EN 60077-2	2002
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529 + corr. May	1991 1993
IEC 60571	1998	Electronic equipment used on rail vehicles	-	-
IEC 60850	2000	Railway applications - Supply voltages of traction systems	-	-
IEC/TR3 60943	1998	Guidance concerning the permissible temperature rise for parts of electrical equipment, in particular for terminals	-	-
IEC 60947-2	1989	Low-voltage switchgear and controlgear Part 2: Circuit-breakers	EN 60947-2 ¹⁾	1991
IEC 61373	1999	Railway applications - Rolling stock equipment - Shock and vibration tests	EN 61373	1999
IEC 61992-2	2001	Railway applications - Fixed installations - D.C. switchgear Part 2: Circuit-breakers	-	-

¹⁾ EN 60947-2:1991 is superseded by EN 60947-2:1996 + corrigendum June 1997 + A11:1997, which is based on IEC 60947-2:1995.

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**NORME
INTERNATIONALE
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**CEI
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60077-3

Première édition
First edition
2001-12

**Applications ferroviaires –
Equipements électriques du matériel roulant –**

**Partie 3:
Composants électrotechniques –
Règles pour disjoncteurs à courant continu**

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**Railway applications –
Electric equipment for rolling stock –**

**Part 3:
Electrotechnical components –
Rules for d.c. circuit-breakers**

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Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

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For price, see current catalogue

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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**RAILWAY APPLICATIONS –
ELECTRIC EQUIPMENT FOR ROLLING STOCK –**

**Part 3: Electrotechnical components –
Rules for d.c. circuit-breakers**

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60077-3 has been prepared by IEC technical committee 9: Electric railway equipment.

The text of this standard is based on the following documents:

FDIS	Report on voting
9/651/FDIS	9/666/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 3.

This standard should be read in conjunction with IEC 60077-1 and IEC 60077-2.

Annex A forms an integral part of this standard.

Annex B is given for information only.

IEC 60077 consists of the following parts under the general title *Railway applications – Electric equipment for rolling stock*:

- Part 1 – General service conditions and general rules
- Part 2 – Electrotechnical components – General rules
- Part 3 – Electrotechnical components – Rules for d.c. circuit-breakers
- Part 4 – Electrotechnical components – Rules for a.c. circuit-breakers ¹⁾
- Part 5 – Electrotechnical components – Rules for HV fuses ¹⁾

The committee has decided that the contents of this publication will remain unchanged until 2008. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

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¹⁾ In preparation.

RAILWAY APPLICATIONS – ELECTRIC EQUIPMENT FOR ROLLING STOCK –

Part 3: Electrotechnical components – Rules for d.c. circuit-breakers

1 Scope and object

In addition to the general requirements of IEC 60077-2, this part of IEC 60077 gives the rules for circuit-breakers, the main contacts of which are to be connected to d.c. power and/or auxiliary circuits. The nominal voltage of these circuits does not exceed 3 000 V d.c. according to IEC 60850.

This part of IEC 60077, together with IEC 60077-2, states specifically

- a) the characteristics of the circuit-breakers;
- b) the service conditions with which circuit-breakers have to comply with reference to
 - operation and behaviour in normal service;
 - operation and behaviour in the case of short circuit;
 - dielectric properties;
- c) the tests for confirming the compliance of the components with the characteristics under the service conditions and the methods to be adopted for these tests;
- d) the information to be marked on, or given with, the circuit breaker.

NOTE 1 Circuit-breakers which are dealt with in this part of IEC 60077 may be provided with devices for automatic opening under predetermined conditions other than those of over-current, for example, under-voltage and reversal of power current. This part of IEC 60077 does not deal with the verification of operation under such predetermined conditions.

NOTE 2 The incorporation of electronic components or electronic sub-assemblies into electrotechnical components is now common practice.

Although this standard is not applicable to electronic equipment, the presence of electronic components does not provide a reason to exclude such electrotechnical components from the scope.

Electronic sub-assemblies included in circuit-breakers should comply with the relevant standard for electronics (IEC 60571).

NOTE 3 Certain of these rules may, after agreement between the user and the manufacturer, be used for electro-technical components installed on vehicles other than rail rolling stock such as mine locomotives, trolleybuses, etc. In this case, particular additional requirements may be necessary.

This standard does not cover

- a) multi-connection of electro-technical components to achieve a particular duty;
- b) industrial circuit-breakers which have to comply with IEC 60947-2;
- c) d.c. circuit-breakers for fixed installations which have to comply with IEC 61992-2.